

Wireless Vibration Sensor Battery Replacement Guide

Version 1.2

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1. SVT standard sensors

Please follow steps below to replace SVT standard sensor's battery.

1. Use one hand to hold the metal base of the [SVT series wireless vibration and temperature sensor](#), and use the other hand to rotate the plastic cover of the sensor counter-clock wise to open the sensor.
2. Use a Phillips screw driver PH 1 to remove the four screws holding the sensor PCB to the battery cover. Remove the sensor PCBA with battery from the metal base (**Figure 1**). The sensor's battery type is 14250 (1/2 AA size). Please remember how the battery is connected to the battery cover and PCB. There is only one direction that allows the battery to be installed to the battery cover, PCB and sensor base.



Figure 1 Remove four screws that fix the PCBA to the battery cover

The battery cover of new sensors is black color and shorter than the white battery cover (Figure 2). The new battery cover uses a stronger material to provide better mechanical response. The battery replacement procedure is similar.



Figure 2 Sensor internal (left: old design; right: new design)

3. Disconnect the battery from the sensor PCB. Insert the new battery's connector to the sensor PCB. The battery uses Molex 51021-2p connector. The connector of the battery is directional. The sensor battery wire is pre-twisted, so that the battery and wire can fit in the battery cover easily. Please do not straighten the wire.

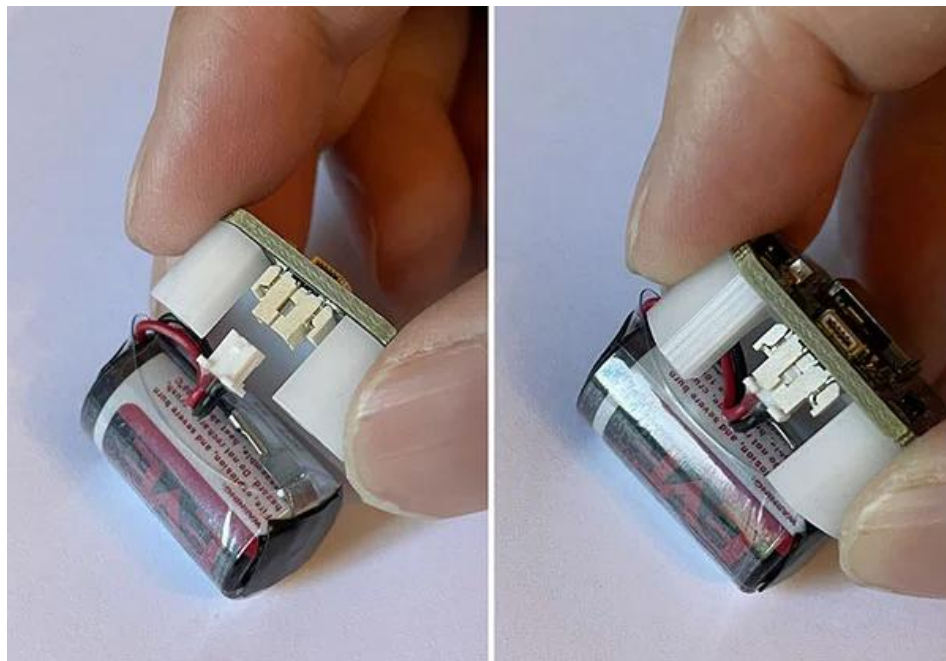


Figure 3 Disconnect battery from battery cover

4. Add new battery to the battery cover and insert the battery connector to the PCBA. There is only direction for the battery connector to fit in.



Figure 4 Put back new battery

Tightening the screws, take some data and verify the battery level. A fresh battery should have a voltage reading at least 3.6v.

5. Insert the sensor with battery back to the base, attach the four screws (caution: please do not overtighten the screws).
6. If user wants to keep the IP68 waterproof rating, then some silicone glue should be put on the sensor base threads. Put back the sensor cover. The [wireless vibration & temperature sensor](#) is ready to use. For IP69K rating that protects the sensor from hot high-pressure water jet and steam, triple coating is required. Please [contact BroadSens](#) for details.

2. SVT-L long-range sensors

SVT-L long-range sensor and wireless IMU sensor SAG200's battery can be replaced by following steps below.

1. Use one hand to hold the metal base of the sensor, and use the other hand to rotate the plastic cover of the sensor counter-clock wise to open the sensor. There are two colors (black or white) of the battery holder, which has the same mechanical design. After opening the sensor cover, the internal sensor board is shown (Figure 5).



Figure 5 Internal SVT-L/SAG sensor

2. Disconnect the battery connector (Figure 6). If the fitting is too tight, flat tweezers may be used to help disconnect the battery connector.

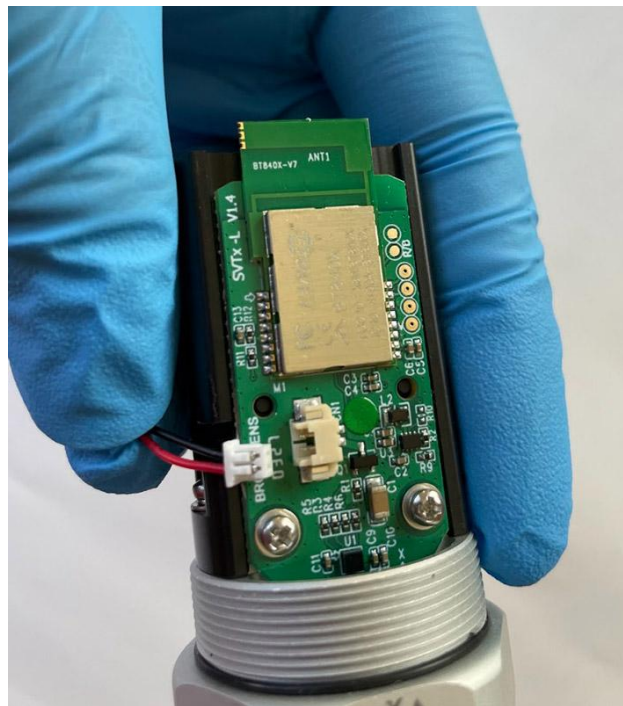


Figure 6 Remove battery connector

3. Remove two screws on the front of the PCB.



Figure 7 Remove two screws on PCBA

4. Remove two screws on the side of the battery holder.



Figure 8 Remove battery holder screws

5. Pull the battery cover with battery out from the sensor base. Please note the battery wire direction. The new battery needs to be inserted the same way as before. There is a groove inside the battery holder to allow the battery wire to go through without being pressed.



Figure 9 Battery wire direction

6. Prepare the new battery. Straighten the black ground wire, and use heat-resistant tape to fix the battery wire (Figure 10).



Figure 10 Fix battery wire with heat resistant tape

7. Add 3M double-sided high-temperature resistant foam tape (thickness 5.5mm recommended) to the positive terminal of the battery and bottom of the battery for extra protection against strong vibrations (Figure 11 and Figure 12).

Please avoid covering the soldering tip of the battery top and battery bottom with the double-sided tape. In the battery top, the soldering tip inside the battery wrap is relatively sharp. Although there are three-layer protection against the soldering tip, strong vibrations more than 64g could push down the soldering tip to cause short circuit of the battery during long-term usage.



Figure 11 Add double-sided foam to battery positive terminal. Avoid covering the soldering tip area

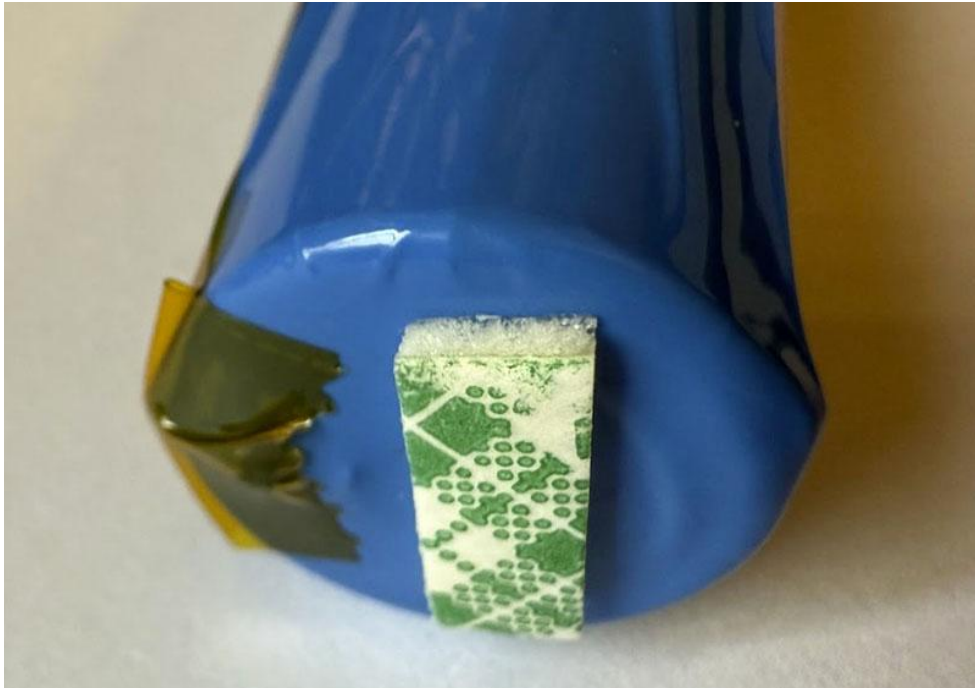


Figure 12 Add double-sided foam tape to the battery bottom

8. Insert the new battery back to the battery cover. Please insert the battery and let the black wire go inside the groove of the battery cover (Figure 13).



Figure 13 Insert the battery and let the battery wires go inside the groove

Then push the battery cover with battery to the sensor base, and screw back two battery holder screws and two PCBA screws.

9. Insert the battery connector. Take some data to verify that sensor is working correctly before putting back the sensor cover.
10. Clean the silicone glue residue from the thread, and reapply some silicone glue for waterproof protection. Rotate the sensor cover clock-wise to fasten the cover to finish the installation.